53. The multiwell plate according to claim 51, wherein said IR-absorbent material is either a carbon black pigment or a laser dye molecule.

54. The multiwell plate according to claim 51, wherein said magnetic particles are ferromagnetic particles.

55. The multiwell plate according to claim 51, wherein said plate further comprises an interfacial gasket.

56. The multiwell plate according to claim 56, wherein said interfacial gasket has IR absorbent characteristics.

57. The multiwell plate according to claim 51, wherein said layer has an optical flatness of about ≤ 5 microns across a width of each well.

58. The multiwell plate according to claim 51, wherein said organic polymeric material selected from a group of polymers containing silane functionality.

59. The multiwell plate according to claim 51, wherein said plate has an average optical flatness of about 10-100 microns across the entire surface of said bottom.

60. The multiwell plate according to claim 51, wherein said layer, which forms the bottom of at least one well, is formed from an inorganic material.

61. The multiwell plate according to claim 60, wherein said inorganic material is a glass.

62. The multiwell plate according to claim 61, wherein said glass is a borosilicate glass.

63. The multiwell plate according to claim 61, wherein said glass is a boroaluminosilicate glass.

64. The multiwell plate according to claim 51, wherein said layer, which forms the bottom of at least one well, is formed from an organic polymeric material different from said frame.

65. The multiwell plate according to claim 51, wherein said layer is a sheet, plate, film, or filter.

66. The multiwell plate according to claim 65, wherein said film has a thickness of less than about 5 mils.

67. The multiwell plate according to claim 51, wherein said layer is either porous or non-porous.

68. The multiwell plate according to claim 51, wherein said frame and layer are joined by either a covalent bond or fusion bond.

69. The multiwell plate according to claim 51, said plate further comprising a silane coating on a portion of said frame in contact with said layer.

70. The multiwell plate according to claim 51, wherein said well bottom has an upper surface with an inorganic coating imparted thereon.

71. An assay plate having a plurality of wells for holding samples to be assayed, said plate comprising:

an upper plate forming a sidewall of each sample well;

a lower plate forming a bottom wall of each sample well;

a covalent bond between said upper and lower plates;

a material which either joins said upper plate and said lower plate to each other by means of an interpenetrating network matrix in the absence of an adhesive having a catalyst, or generates heat when subjected to select wavelengths of

electromagnetic radiation situated in a localized portion of an interfacial region between said upper and lower plates.

72. The assay plate according to claim 71, wherein said materials are either infrared-absorbing materials or magnetic particles.

73. The assay plate according to claim 72, wherein said infrared-absorbing materials are carbon black particles or dye molecules.

74. The assay plate according to claim 73, wherein said magnetic particles are ferromagnetic particles.

75. The assay plate according to claim 71, wherein said plate further comprises an interfacial gasket.

76. The assay plate according to claim 71, wherein said well bottom has an average optical flatness of about $\leq$5 microns across a width of each well.

77. The assay plate according to claim 71, wherein said lower plate has a bottom surface with an average, overall optical flatness not greater than about 55-50 microns, as measured across the entire bottom surface of said lower plate along a line intersecting a diameter of a number of said wells.

78. The assay plate according to claim 71, wherein said plate further comprises a silane coating disposed at an interface between said upper and lower plates.

79. The assay plate according to claim 71, wherein said upper plate has a unitary construction formed from a polymeric material, and said lower plate has a unitary construction formed from an inorganic material.

80. The assay plate according to claim 78, wherein the polymeric material contains silane functionality.

81. The assay plate according to claim 80, wherein the silane functionality is poly(ethylene-co-trialkoxyvinylsilane).

82. The assay plate according to claim 79, wherein the inorganic material is either a borosilicate glass or boroaluminosilicate glass substrate.

83. The assay plate according to claim 79, wherein said upper plate and said lower plate are attached to each other at least in part by covalent bonds of siloxane linkages.

84. The assay plate according to claim 71, wherein said upper and lower plates are formed from different kinds of polymeric materials.

85. The assay plate according to claim 71, wherein said upper and lower plates are formed from the same kind of polymeric material.

86. The assay plate according to claim 71, wherein said bottom wall has an upper surface with a biologically reactive coating imparted thereon.

87. The assay plate according to claim 71, wherein said bottom wall has an upper surface with an inorganic coating imparted thereon.

88. The assay plate according to claim 71, wherein said sidewall of the sample well is not functionalized.

89. The assay plate according to claim 71, wherein said lower plate contains a relief feature formed upon a surface.

90. The assay plate according to claim 89, wherein said relief feature includes any one of the following: lens, gratings, concentric circles, depressed regions, dimples, raised regions, or ridges.

91. The assay plate according to claim 71, wherein said lower plate is either porous or non-porous.